

REMARKS

Claims 3, 4, 6 and 18 have been canceled. Claims 1, 2, 5, 7-17, 19 and 20 are active in the case. Reconsideration of this application is requested.

The present invention relates to an element for a line system that is a part of a fuel cell.

Claim Amendments

Claim 1 has been amended by incorporating the limitations of Claims 3, 4 and 6 therein. Minor clarifying amendments have been made to Claims 5 and 7. The amendments do not introduce new matter into the case. Entry of the amendments is respectfully requested.

Claim Objection

The objection to Claim 4 is obviated by its cancellation. Withdrawal of the objection is respectfully requested.

Invention

The present invention is directed to a component of a line system of a fuel cell, comprising: a) an innermost layer I, which is in contact with the conveyed fluid and is comprised of a polyester molding composition that contains at least a conductivity increasing additive, and, b) at least one other layer present which is selected from the group consisting of:

- i) a layer II comprised of a polyamide molding composition,
- ii) a layer III comprised of a molding composition comprised of a functionalized polyolefin;

iii) a layer IV comprised of a polyolefin molding composition in which the polyolefin is not functionalized, and

iv) a layer V comprised of an EVOH molding composition. The polyester molding composition is such that when a fluid comprising water is passed over the innermost polyester layer, the conductivity at 90° C increases only by a maximum of 100 μ S/cm or wherein the polyester molding composition of layer I is such that when a fluid comprising water and methanol is passed over the innermost polyester layer, the conductivity at 90° C increases only by a maximum of 80 μ S/cm. The line system of the present invention provides a fuel cell system that entirely eliminates or permits the leaching of components from the line system that can react with the electrolyte or with the anode material of the cell which would poison the catalyst of the fuel cell or which would cause undesired polarization of the cell.

Prior Art Rejection

Claims 1, 6, 7 and 18-20 stand rejected based on 35 USC 102(b) as anticipated by Semegen et al, U. S. Patent 2,827,098. This ground of rejection is respectfully traversed.

The Semegen et al patent is directed to a self-sealing article that comprises a polyacrylate that is disposed in the interior of a tire or tube. However, an embodiment of the patent is a self-sealing fuel cell, which from the description in column 3 of the patent and Figure 3, is a multi-layer structure of an inner rubber layer and an adjacent polyamide (nylon) barrier layer. A "polyester rubber" is mentioned as an inner layer material. It is not clear what a rubbery polyester is and whether it qualifies as a polyester molding composition as required by the present claims. In fact, applicants, having limited Claim 1 to the polyesters of Claim 3, have distinguished the invention as claimed over the reference since the polyesters of original Claim 3 are not polyester rubbers. Accordingly, the Semegen et al patent does not anticipate the invention as claimed and withdrawal of the rejection is respectfully requested.

Claims 1-7, 9-12, 15 and 18-20 stand rejected based on 35 USC 102(b) as anticipated by Ries, U. S. Patent 5,798,048. This ground of rejection is respectfully traversed.

The Ries patent discloses a plastic fuel filter that has antistatic properties wherein the housing of the fuel filter is comprised of a layered structure of a conductive inner layer and a conductive outer layer of a first plastic and a non-conductive middle layer of a second plastic. Various types of electrically conductive additives and amounts thereof for incorporation in the polyester layer are described at the top of column 7. However, there is no teaching or suggestion in the patent of an inner polyester layer whose conductivity is modified to the specific extent set forth in present Claim 1 in terms such that when a fluid comprising water is passed over the innermost polyester layer, the conductivity at 90° C increases only by a maximum of 100 μ S/cm or that when a fluid comprising water and methanol is passed over the innermost polyester layer, the conductivity at 90° C increases only by a maximum of 80 μ S/cm. Accordingly, the outstanding anticipatory ground of rejection is believed obviated and withdrawal of the rejection is respectfully requested.

Claims 1-12 stand rejected based on 35 USC 102(b) as anticipated by Boer et al, U. S. Patent 6,355,358. This ground of rejection is respectfully traversed.

The Boer et al patent discloses a multi-layer composite that can be used in the fabrication of such devices as pipes, filler necks and tanks, in particular for the transport or storage of liquids or gases. As such, the patent teaches the combination of a layers I and II, each of a thermoplastic molding composition, wherein an embodiment of the multi-layer structure, as described in the paragraph bridging columns 5 and 6, is a layer I of a polyamide and a layer II of a polyester. However, the emphasis of the patent is on a so-called adhesion promoter layer which is a particular graft copolymer. Nowhere mentioned in the patent is a polyester/polyamide layered structure, wherein the polyester layer, in particular, as an inner layer, is provided with a stated electrical conductivity, indeed as the Examiner has noted on

page 4, lines 3-5 of the Office Action. This deficiency on the part of the patent is critical, because it is the stated conductivity of the polyester layer in the device of the present invention that defines the line system of the invention which is suitable for a fuel cell. Accordingly, it is clear that the patent does not anticipate the present invention as claimed.

It also should be noted that the Boer et al patent is a patent that is commonly owned with the present invention by Degussa AG. The patent shares two inventors in common with the present application. Since the present application has a filing date of April 9, 2004, it is clear that under the provisions of 35 USC 103(c), the Boer et al patent is not available against the claims of the present application. Withdrawal of the anticipatory ground of rejection is respectfully requested.

Claims 13 and 14 stand rejected based on 35 USC 103(a) as obvious over Semegen, Ries or Boer et al in view of Kito et al, U. S. Patent 6,491,994. This ground of rejection is respectfully traversed.

The distinction between the present invention as claimed and each of the above-discussed primary references has been shown above with respect to the electrical conductivity property of the innermost polyester layer of the claimed line system. However, the Kito et al patent only discloses a three layer fuel tube wherein each of the layers is formed of a thermoplastic polyamide. As such, therefore, the patent contains no disclosure that is directed to the distinction, as stated, between the present invention and each of the Semegen, Ries and Boer et al regarding the electrical conductivity of the inner polyester layer of the present laminate. Accordingly, the obviousness ground of rejection is believed obviated and withdrawal of the rejection is respectfully requested.

Claims 16 and 17 stand rejected based on 35 USC 103(a) as obvious over Semegen, Ries or Boer et al in view of Oishi et al, U. S. Patent 5,849,376. This ground of rejection is respectfully traversed.

For much the same reasons given above concerning the obviousness ground of rejection, applicants believe that the cited combination of Semegen, Ries or Boer et al in view of Oishi et al does not suggest the present invention. The Oishi et al patent discloses a multi-layer laminate of a hydrolyzed EVA inner layer/ polyolefin-hydrolyzed EVA layer/polyolefin layer. Clearly, however, the reference contains no disclosure that is directed to the distinction, as stated, between the present invention and each of the Semegen, Ries and Boer et al regarding the electrical conductivity of the inner polyester layer of the present laminate. Accordingly, the obviousness ground of rejection is believed obviated and withdrawal of the rejection is respectfully requested.

It is submitted that this application is now in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

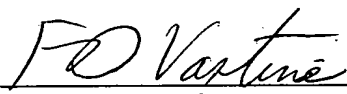
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